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THE
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☞See advertisement on last page.

Poetry.

MY OWN DEAR NATIVE LAND.

BY SAMUEL D. PATTERSON.

I've wandered far in distant lands,
Beyond old ocean's wave,
And stranger hearts and kindly hands
A generous welcome gave:
I've stood among the high and great,
In many a lofty hall,
Where titled wealth and glittering state
Held joyous carnival.

But, kind and generous and warm
As were the hearts I met,
Their welcome had no power to charm,
Or lure me to forget
My own loved land. The memory came
In bower or stately dome,
Across my soul, with magic gleam
Of my own dear native home.

What, though its fields are wild and rude?
Its mountains rough and high?
And tempest floods in angry mood
And turbulent rush by?
It is the land of free-born men,
Who spurn oppression's thrall,
And every mountain pass and glen
Echo to freedom's call.

No tyrant foe shall ever wave
His conquering sceptre here;
The heritage our fathers gave
Their offspring hold too dear,
With high resolve, and faith sincere
A patriot host they stand,
To guard the fame, unstained and clear,
Of our loved native land.

PROGRESS.

BY MISS PHŒBE CAREY.

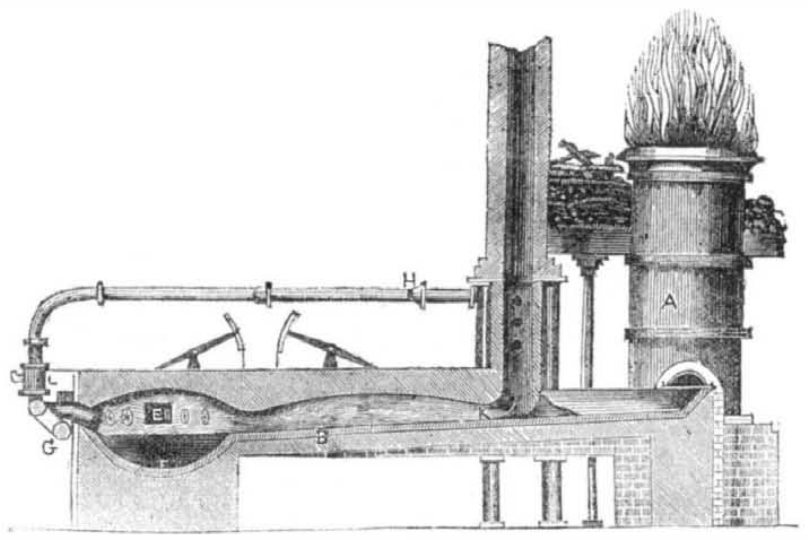
Does the earth contain one spirit
Bowed despondent to the dust,
On the midnight of whose vision
Beams no star of hope and trust?
Let that soul but pause and ponder
On the works the Past has done,
And an earnest, bright and glorious,
For the Future shall be won.

For the soul must feel the stirring
Of its destiny sublime,
Who but rightly views the present,
With its earnest heart and mind,
Toiling in the earthly vineyard
Many bands have found a place;
Some are nearing to the summit,—
Some are at the mountain's base.

Progress is the stirring watchword—
Cheers them upward to the height;
Canst thou pause and play the laggard,
With its glories full in sight?
And while fair and broad and glorious
In our vision we can see,
Still the future brightly stretching
Into far infinity:

Who shall tell what bond or barrier
To improvement heaven designed?
Who shall dare to fix the limits,
To the onward march of mind?
Only He, who into being
Called the unfathomed human soul,
He for whom the hymn of Progress
Through eternity shall roll!

IMPROVEMENT IN THE MANUFACTURE OF CAST STEEL.----Figure 1.

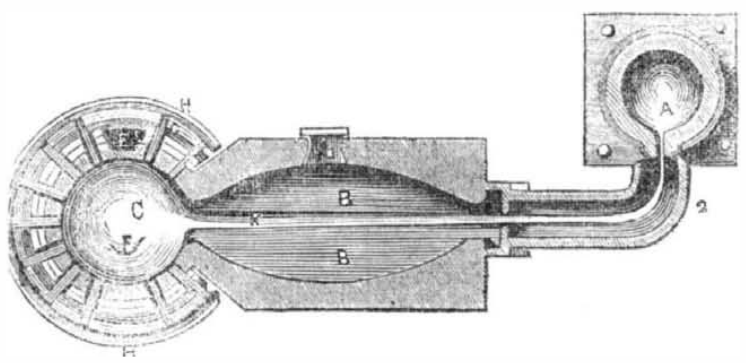


This is an invention of Mr. J. M. Heath, of London, iron manufacturer, for the manufacture of cast steel, by cast iron. The inventor uses the common cupola furnace heated with hot air. The fluid pig iron is run into a receptacle from the cupola, which receptacle must be able to stand an intense heat, in form like a common refinery. The quantity of fluid pig iron used should occupy about one-third of this vessel and be kept intensely hot by currents of ignited carbonic oxide gas conveyed through pipes to bear upon its surface, or oxyhydrogen gas, produced by directing a stream of atmospheric air into a current of hydrogen gas formed from the decomposition of water which is allowed to trickle upon malleable iron brought to a high heat. When the cast metal is rightly decarburated, which requires some practice to know, about an equal proportion of malleable is introduced to the fluid pig iron. If grey pig iron is used, it will require more malleable mixed with it than if the white was used.

The malleable iron is mixed in the pig iron fluid in scraps and must be heated to a white heat first in another furnace, and when it is put into the receptacle with the pig iron, it is raked and stirred about sufficient to produce an intimate mixture.

The description of the two cuts is blended, for a better explanation, because Fig. 1 is a section taken in the line 1, 2, of

Figure 2.



And Fig. 2, is a sectional plan view of the furnace, the upper part being removed to show the interior. A, is the cupola in which the pig iron is melted. There is nothing peculiar in the form or size of this furnace; but the patentee prefers the use of heated air, to preserve the metal, while running from the furnace, at the highest possible temperature. B, is the bed between the receptacle for the fluid metal and the chimney. The malleable iron, or deoxidated iron, is placed upon this bed, on either side of a channel K; and it is brought to the highest possible temperature, by the passage over it of the flame from the combustion of the gas and air introduced through the pipes G and H. C, is a receptacle, into which the melted pig iron is run from the cupola, and into which the malleable iron, at a white heat, is raked through the door D, when at a high heat, and intimately mixed with the fluid pig iron, by stirring with a wooden pole; the temperature of the contents of the receptacle may be raised to any degree required, by means of the combustion of any gas, rich in carbon and hydrogen, by mixing with it hot atmospheric air, or oxygen gas, as before mentioned; and the proportions required to produce perfect combustion of the gas, without producing an oxidating flame, may be exactly regulated by a stop-cock, or valve L, placed on the pipe H. The receptacle may be of any size, according to the quantity of steel required to be produced.—Carbonic oxide is the best gas for this purpose which may be collected from a cupola or a blast furnace, or may be produced in a separate furnace, by the combustion of any refuse fuel. D, is the door by which the malleable iron or deoxidated ore is introduced upon the bed B, and by which it is raked into the receptacle. E, is a small door through which a bar of iron or a wooden pole is introduced, for the purpose of stirring the melted fluid. F, is a tap hole, by which the steel is run into moulds from the receptacle. G, are pipes, through which the carbonic oxide or other gas is conveyed to the receptacle C. These pipes should dip downwards slightly, so that the flame from the ignited gas may play upon the contents of the receptacle, and keep the whole in a fluid state. H, are pipes, through which the hot atmospheric air, or oxygen gas, is conveyed, to be mixed with the gas in the pipes G. When atmospheric air is used, it may be heated in the pipes by the waste flame which passes up the chimney. The gas and air pipes are arranged in the usual manner.—The channel through which the liquid pig iron is run from the cupola or blast furnace into the receptacle is shown at K; and L, is a valve by which the admission of hot atmospheric air or oxygen gas is regulated, so as to produce perfect combustion. When the assays taken from it shew that the steel of the receptacle is of the desired quality, the contents are run off into moulds.

We are acquainted with an iron manufacturer in New Jersey who has invented a more simple plan to effect the same object as Mr. Heath's invention. We will be able to give an engraving of it as soon as it has progressed far enough to warrant a prudent publication.

RAIL ROAD NEWS.

New York and Erie Railroad.

Thirteen miles of the New York and Erie Railroad have been completed since the annual report, from Shawongunck summit to Port Jervis, on the Delaware making in all 75 miles now in running order. The adoption of the Delaware river route has enabled the Company to obtain a line descending on a grade from the mountain of only 45 feet to the mile. The section from Port Jervis to Binghampton, 127 miles, is under contract and the work is in such a state of forwardness that its completion is anticipated in the Fall of the present year. With that expectation contracts have been made for 21 locomotives of the largest class, and provisions have been made for a sufficient outfit of freight and passenger cars, most of which will be built in the shops of the Company. A large portion of the iron rails are now upon the road, and the work of laying down the track in the valleys of the Delaware and Susquehanna will be commenced about the first of June next. A considerable force has been employed in grading the Newburg branch.

The receipts of the Company from all sources during the year was $2,306,789 39 and expenditures for all purposes including construction, $2,379,446 81. The cash on hand January 1, 1848, was $170,441 88 — Number of miles in operation, (not including extension to Port Jervis.) 62.

Hudson River Railroad.

The Engineer of the Hudson River Railroad (J. B. Jervis Esq.,) has made his report on locating the line between Fishkill and Albany, giving it as his decided opinion that the best interests of the stockholders and the public require that the River route should be taken. It appears from the report that the advantages of the River route are numerous, while those of the inner are few and insignificant. The estimate of the first cost of the inner route is $538,669 less than the River route. The two lines are about the same in length, being about one mile in favor of the inner route. The total ascent and descent on the River route is 152½ feet. The total ascent and descent on the inner route is 1,061.58 feet! Estimated yearly expense of overcoming the high grade of the inner route over the River route, after deducting some extra charge which the River route would be subject to, $42,000—equal to an investment of $600,000 at 7 per cent.

Mobile and Ohio Rail Road.

A railroad from Mobile, Ala., to the mouth of the Ohio river, has been in contemplation for a year or two past, and a charter for it has now passed the Alabama Legislature, 78 to 13. It is an immense undertaking, and though it would be exceedingly profitable if the countries through which it has to pass were thickly settled, it can be scarcely sustained while the country is filling up.

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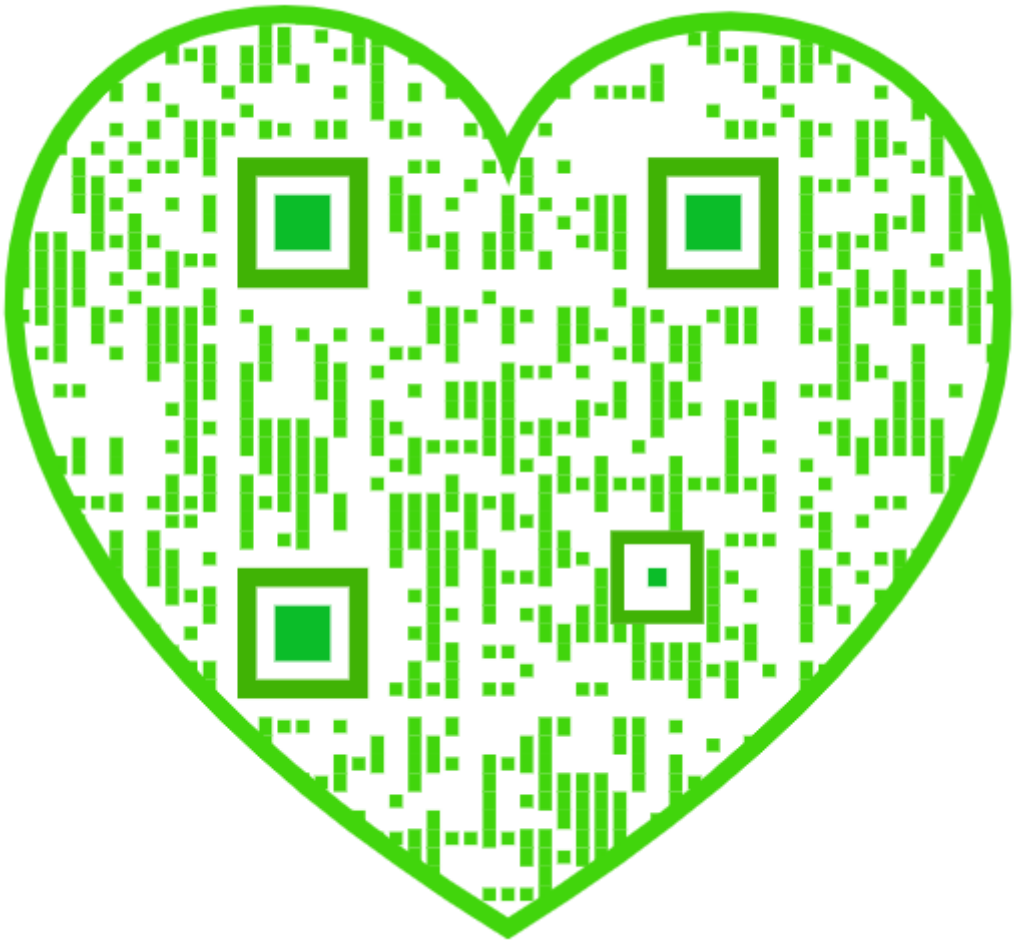

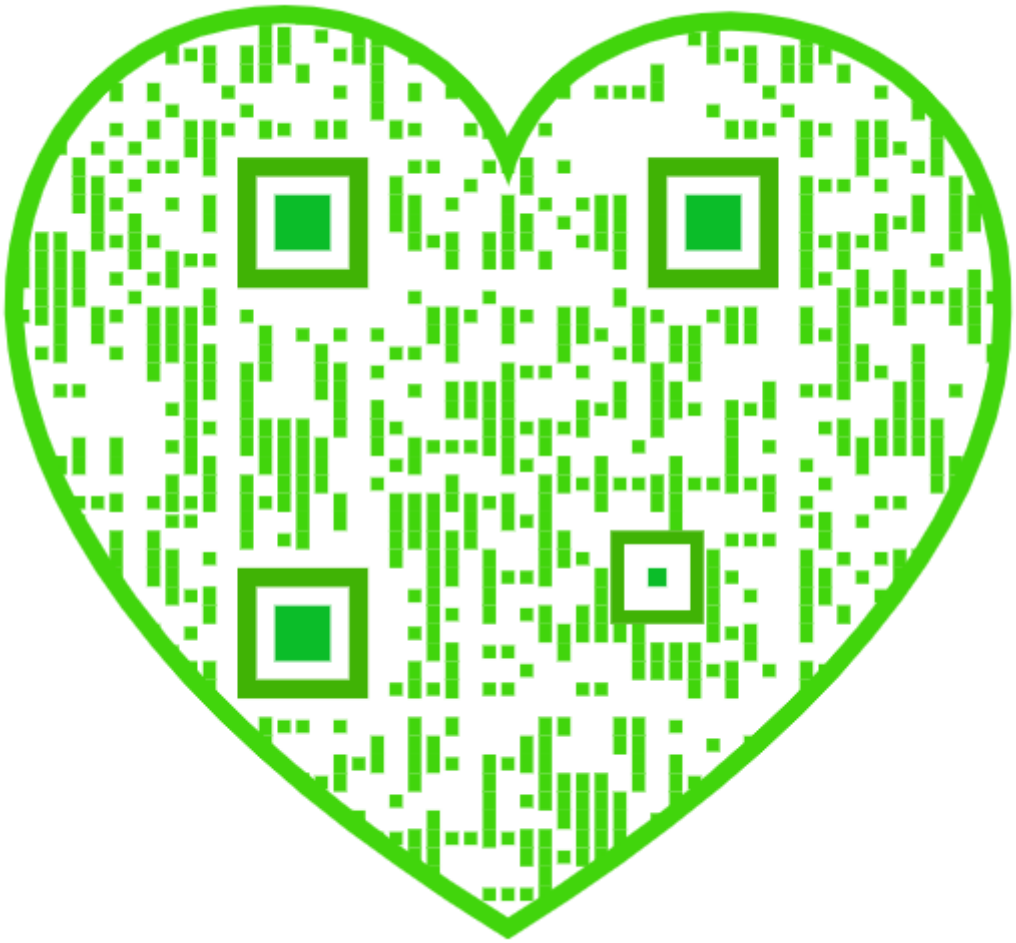

Mining.

The Miner's Express says: "We understand that mining, to a considerable extent, is carried on in the neighborhood of Patrie La Port, in Clayton county. Indeed from the discoveries which have recently been made, there is every reason to believe that the country above us possesses as much mineral wealth as any other in the lead mine region. Some valuable discoveries, we understand, have recently been made in the vicinity of the place above named; and mineral is said to be found by almost all who are engaged in the business of mining,

Embarrassments of the Iron Trade.

The Puddlers of the Phoenixville, Pa., Rolling Mills, recently held a meeting to oppose the reduction of their wages that has been made in some of the machine shops of Pottsville.

The factory operatives at Fall River ceased work last week, in consequence of a reduction of wages. Nearly all the Mills have stopped. It is a hard case on both sides; the operatives and owners both complain of hard times. Four hundred workpeople are thrown out of employment by the failure of Robison and Co., at that place.

Iron Works Stopped.

The Boonsboro' Odd Fellow says, that the Antietam Iron works has again been stopped, not, however, by the chilling of the furnace this time, but by the more precious metal becoming scarce. The present owner of the works, Mr. Gilmore, of Baltimore, finding affairs badly managed, and not yielding a sufficient amount to justify operations, sent an individual up a few days ago, who promptly paid every dollar due the hands and then discharged them. We learn that the works are to be sold.

Telegraphic Extension.

The opening of the Lake Erie Telegraph (one of the sections of the Atlantic, Lake and Mississippi line,) was signalized last week by an "exchange of compliments between the Niagara and Mississippi, per streak of lightning between Buffalo and St. Louis. This Lake Erie line is a glorious one, opening up a new lightning route between New York and the Western States.

Ohio and Indiana Canals.

The board of public works of Ohio and the trustees of the Wabash and Erie canal in the State of Indiana, have agreed to unite in an adjustment of the rates of tolls on the Miami and Erie and the Wabash and Erie canals, on such reduced terms as will, it is supposed, make it an object to transport from Cincinnati all articles designated for the upper Wabash country, by way of their canals, instead of the route by way of the Ohio and Wabash rivers.

Philadelphia and Charleston Steamship Line.

The merchants of Philadelphia have organized a company for a line of steamers to run between that city and Charleston, S. C. One splendid steamer called the Columbus is now nearly ready for sea, and another is to be immediately constructed.

The steamboat Columbus made her trial trip last Saturday afternoon. She gave great satisfaction. Her average speed was 12miles an hour with 600 pounds of coal expenditure.

Medals for Soldiers.

Mr. Cass moved a resolution in the U. S. Senate for the issue of a silver medal of large size to officers of the army, and one of smaller size to the soldiers of the regular force who have distinguished themselves in any of the battles in Mexico. Also, honorary certificates on parchment. A board of officers to be appointed to examine the merits and report the names of those worthy of the proposed honors. In the case of an officer or private killed in battle, the medal shall be given to his family or nearest relatives.

New Rotary Engine.

The London Builder, states that Mr. E. Galloway has patented what has hitherto been esteemed much more as a philosopher's stone of steam power than a practical invention. It is said to be so wonderful portable as not to weigh more than two or three hundred pounds and not to occupy more than half the space of an ordinary hat-box. A steam pipe from the boiler brings the steam into this little receptacle; an eccentric crank is turned by the rotary motion within it; and this is all the machinery said to be necessary to propel the largest engines, whether mining, marine, or locomotive. The Admiralty are said to have ordered an estimate for supplying the *Menai* war sloop with a fifty horse power one.

We have seen a drawing of Mr. Galloway's engine. He is the author of the best work ever publihed on the rotary engine, yet we deem his inventions and enthusiasm on that subject of more value as buoys and lighthouses to direct the mechanic in his pursuits to avoid his shoals and quick-sands than any benefit his rotary will be to, or any reform it will make in, the world.

The Current of Manufacturing Skill.

We see it stated in some of our foreign exchanges that several Scotch manufacturers have gone to France to engage in the spinning of flax, a branch of business recently undertaken in France.

Now this is very singular. The French Huguenots first introduced the art of flax spinning into Scotland, and the superiority to which the Scotch have since attained in manufactures must be owing to the persevering disposition for which that race are so distinguished. Chlorine Gas was first discovered in France and applied there to the purposes of bleaching cotton and linen, and James Watt was the first person who introduced it into Scotland from France—yet strange to relate, thirty years after that period hundreds of Scottish bleachers were sent for to France and got good wages in teaching the French the art of bleaching and dressing bleached goods. There is undoubtedly a great difference between the two branches of the Celtic race.

That Railroad in Mexico.

The contemplated Railroad between Vera Cruz and Mexico, (says a correspondent of the New Orleans Picayune,) passes over no mountains, and crosses no swamps; the ascent though great, is very gradual—not more than a yard and a quarter in every hundred—and the nature of the ground extremely favorable.

Alabama Gold.

The Alabama Planter says "we were not aware until lately that any efforts were making in this state to collect gold, but we understand that during the past year, dust and bars to the value of $20,000 were sold in Wetumpka. The gold was obtained chiefly in Tallapoosa county, and has thus far proved to be remarkably pure. A merchant of this city (Mobile) sent to New Orleans Mint, a few days ago, 568 dwts. 7 grs. in bars for coinage and received in return after paying commission and postage, $518.

Death of Cole.

Thomas Cole, the distinguished landscape painter, died on Saturday at his residence near Catskill, from what disease we are not informed. He leaves a wife and a numerous family to mourn his loss, a sorrow in which a large number of devoted friends will share. To art, his death is a great calamity.

Important Discovery.

The London Literary Gazette, states, that Mr. Harris, of Alexandria in Egypt, has purchased a papyrus in Greek characters, which is the oration of an accuser, apparently Hyperides, against Demosthenes, for taking the bribe, or rather embezzling the 760 talents of Aarpalus

Fashion vs. Feeling.

A little girl hearing her mother say that she was going into half mourning, inquired; 'are any of your folks half dead?"

The great and valuable water power of the Shenandoah river, at the upper terminus of Harper's Ferry, Va., was sold on the 2d inst. to an Eastern company, with 145 acres of land, for $9000.

A Salutary Thought.

There was a man who was universally reported to be a very liberal man and uncommon liberal in his dealings. When he had any produce of his farm to dispose of, he made it an invariable rule to give good measure, over good, rather more than could be required of him. One of his friends observing his frequently doing so, questioned him why he did it, told him he gave too much, and said it would not be to his own advantage. Now, my friends, mark the answer of this Presbyterian:—"God Almighty has given me but one journey through the world, and when gone I cannot return to rectify mistakes. Think of this, friend; but one journey through the world."

Strange Meteor.

A remarkable phenomenon was witnessed on the 21st of last month, in some of the counties of Missouri. A correspondent of the Montgomery Journal, Butler county, says:

I have lived to see over forty years and have never witnessed so remarkable a phenomenon as took place in this neighborhood to-day, (Friday, 21st. ult.) at half-past ten o'clock in the morning, a ball of fire about five or six inches in diameter, passed swiftly through the air at a considerable height from the ground, from east to west, with a tremendous crashing noise, sounded as though a great horse had been passing over a bridge, and as it retired still farther westward, it kept up a dull rumbling noise.

Tripoli.

A short time ago we published an extract from the Cambridge, Mass. Chronicle, setting forth that a valuable vein of Tripoli had been discovered in this country, and requested more information regarding it. Since that period we have received a package of the mineral and tested its qualities. We have no hesitancy in pronouncing it to be equal, if not superior to the Italian Tripoli so much used in Europe. Only a narrow bed of it has been discoverad near Saco in Maine, which is owned by the Mount Eagle Company, who manufacture it for use. The principal Depot is Cheever & McBurney's, Boston. For polishing plate and glass, it has no equal and for reflectors, and sword blades, &c., it is superior to every other article, and is not expensive being sold in packages from 10 to 15 cents each.

Ewbank's Hydraulic's.

No. 4 of this valuable standard work has just been issued from the press of Greely and McElrath. This is a work which we again take occasion to say, should be in every man's possession no matter what business he may follow after. No mechanic at least should be without it, as it is a little library in itself, full of good and sound information, and written in a chaste and forcible style.

If smoking, says the Scottish Temperance Review, continues to increase, it will ultimately destroy the energy, and thoroughly practical character of the nation, and induce the dreamy, speculative, unpractical, and inert character of the German mind.

A bill has been reported in the Massachusetts Legislature, to incorporate a company, with a capital of $200,000, to manufacture bed quilts and petticoat robes.

It is stated that 69,000 pairs of shoes were sent from Haverhill week before last, for the South and West, by order of purchasers, and large orders are continually filled by the manufacturers.

The editor of the Pittsburg Despatch has seen a beautiful copy of the Declaration of Independence—signatures and all—engraved upon one side of an American dollar.

The Pope has lately suppressed nine convents, viz: two at Rome, two at Gubbin, and five at Urbino: their incomes are to be applied to benevolent purposes.

A Gen. O. H. Knapp, has just put in operation at Sylvania, Ohio, an extensive machinery for finishing staves.

The French Ministry propose to confer on Jerome Bonaparte, ex-king of Westphalia, a life annuity of $30,000.

The steamboat Montgomery, says the Alabama Planter, brought down to that city ten bales of domestic goods from Prattville, Autauga county. This is some of the first fruits of the domestic manufactories of Alabama.—It is but a small beginning, but in ten years hence, with the present progressive disposition of the citizens of that state, it may be of some interest to look back and see how and when her start in the great manufacturing race began.

A sheep which disappeared from its home in Salem county, on Christmas day, was accidently found in a hollow log, alive, after 26 days confinement. It worked its way in the log, to secure a shelter from the snow, until its forward progress was stopped and not understanding the science of "backing out," remained a close prisoner as above stated.

Another Land Slide is expected, in the hill back of Troy, New York. A large crach has opened, and the earth seems preparing to move—which has caused several families to beat a hasty retreat.

There is a beautiful gothic cottage on the top of the hill, which will yet disappear. The hill is a deposit of gravel.

Silver Goblets, suitably inscribed, have been presented by the British and North American Royal Mail Steam Packet Company, to H. C. Merriam, H. Terry, and H. W Robinson, of Boston, for services rendered to the steamer Britannia, on her arrival at Boston in distress, on the 18th Sept. last.

The Aurora Borealis was distinctly visible at Weldon, N. C. on 28th January, three times during the same evening. It is described as having been very brilliant. It was also seen in this city in unusual spelndor, on Sunday evening.

Adversity exasperates fools, dejects cowards, draws out the faculties of the wise, and ingenious, puts the modest to the necessity of trying their skill, awes the opulent and makes the idle industrious.

A Rail road from Mount Holly, to Camden N. J., has been projected, a company organised, the stock subscribed for, and the charter now before the Legislature, has passed the lower house.

One of the Nasmyth Patent Direct Action Steam Hammers, built by Merrick and Town, has been put up at the Washington Navy Yard. Weight of hammer 30 cwt., and weight of block in two pieces, 36,000 lbs.

At a late meeting of the Scotch antiquarian Society there was exhibited the original deathwarrant of Mary Queen of Scots, and an autographic letter of her stern monitor, John Knox.

Immense beds of coal are said to have been discovered in the vicinity of Obed river, Tennessee. In Fentress Co., in the same state, inexhaustible beds of coal have been traced out

The snow plough ran off the track, on the Maine Railroad lately, scaring half a dozen of Irishmen who were on board, half out of their skins; but doing no other harm.

An iron steamer was recently carried from this country to Canton, in the ship Eliza Walker. She is to run between Canton and Whampoa. An entirely new kind of freight is a steamer, we think.

The steamboat Allen Glover recently exploded her boilers, on the Warrior River, but there was fortunately no loss of life by the accident.

The engine of the New York Steamboat train broke down, on Wednesday the 9th inst, when within eight miles of Providence.

The machinery for two factories, to be erected in Lima, recently arrived from the U. States, also for a paper mill, and a cotton manufactory.

The Emperor of Russia will not permit American newspapers to circulate in his dominions.

A wise man endeavors to shine in himself, a fool to outshine others.

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The Cast Iron Plow.

A bill has recently passed the Senate of the United States, and is now pending in the House of Representatives, to extend the patent of Jethro Wood for seven years, which he obtained in 1814, and renewed in 1819, claiming to have invented the cast iron Plowshare. This bill proposes to grant to the heirs of Jethro Wood, the privilege of exacting fifty cents from the manufacturer for every Cast Iron Plow made in the United States for seven years after the passage of the said bill.

As there are about four millions of farmers and planters at present in the United States, and as each would require on an average at least one plow every four years, this privilege would be worth *half a million of dollars annually*, all of which would be taken from the hard earnings of the farmer and planters And what makes the matter more unjust is, that the interest of the heirs of Wood have been purchased for a mere song; thus nearly the whole benefit of it will inure to a company of greedy speculators.

But Jethro Wood, as I shall proceed to show, was not the original inventor of the Cast Iron Plow-share, nor did he ever improve the Plow in the slightest degree; he was consequently entitled to no merit in this thing, and much less to a patent: and had the fact been known by the Commissioner of Patents, in 1814, he would not have granted him one, or renewed it in 1819 neither would the United States Court have confirmed him in it after it had been granted.

The Cast Iron Plowshare was invented by Robert Ransom, of Ipswich, England, and he obtained a patent for it in 1785, twenty-nine years before Jethro Wood obtained his. The Cast Iron Plow, with the share and mould-board in two parts, was kept for sale by Peter T. Curtenius in this city, as early as 1800; and in use in this neighborhood. Jethro Wood undoubtedly obtained his knowledge of the cast iron share, from one or the other of these for the Cast Iron Plow as a whole, and in separate parts, will be found figured and described in almost every Encyclopedia, and work on agricultural implements, published in Great Britain, since 1790. These works soon found their way into the United States, and it can be proved by the testimony of the intimate friends of Jethro Wood, that he was familiar with these publications.

The history of the Cast Iron Plow and improvements are simply this.

James Small, a Scotchman, constructed a Cast Iron Plow on true mechanical principles as early as 1740, and was the first inventor of the cast iron mould board. Robert Ransom, of England, invented the cast-iron share in 1785. An English farmer in the County of Suffolk, invented the cast iron land side shortly after, so that as early as 1790, the Cast Iron Plow complete, in three distinct parts, was well known and in use in Great Britain, and figured and described in nearly every work of any value since published on the subject of plows and agricultural implements.

Without any knowledge of these improvements of the Cast Iron Plow in England, Charles Newbold of New-Jersey, about the year 1790, took up the plow with a view of improving it in the United States. On the 17th of June 1797, he obtained a patent for the Cast Iron Plow skeleton, in one piece complete. Subsequently he made his plows with a cast-iron mould board and land-side, and attached a wrought iron share to it. Shortly after this, he still often spoke of farther improving his plow, by substituting the cast-iron share. But having spent upwars of $30, 000 in his improvements and efforts to introduce it into use in the United States and elsewhere, he got discouraged and gave up the business.

Peter T. Curtenius, as stated above, kept the Cast Iron Plow for sale in this City, the share and mould boards in separate parts, as early as 1800. Who was the manufacturer of these I am unable to learn.

In 1804, I think David Peacock, of New-Jersey, obtained a patent for a plow, the mould board and land-side of cast iron and in separate parts, the share of wrought iron steel-edged. He copied Mr. Newbold's plow in part, and for the privilege of which he paid him $1,000.

In 1814 Jethro Wood obtained a patent for a plow, the mould-board land-side and share in three parts and of cast iron. He was familiar with Newbold's and Peacock's plows, and his was a bungling imitation of theirs, and not near so perfect in form and construction as the old Rotherham plow, which had been in use in Great Britain upwards of seventy years before ever Wood obtained his patent.

It is said that the Cast Iron Plow, in three parts, viz; mould board, land side and share was in use in Virginia previo us to 1814, and that Wood was aware of it.

With these facts before them, the public will now see how great an injustice it would be for Congress to extend the patent of Jethro Wood, and give his heirs or rather a company of greedy speculators, the privilege for seven years, of exacting fifty cents per plow from every one engaged in their manufacture.

I hope these facts will be widely disseminated by the press throughout the United States; for the hard working farmers and planters ought to be immediately apprized of what so vitally concerns them. As the bill is still pending before the house of Representatives let all those opposed to injustice and special privileges take pains to call the attention of every member to the subject, so that the iniquitous measure may be defeated.

A. R. ALLEN.

Geology.

The explorations of Geology have brought to light wonders scarcely exceded by those of Astronomy. While many fanciful theories have no doubt originated, the facts which are constantly developed are adapted at once to gratify and stimulate the friend of science:

"Mr. Lyell travelled across Sweden from the east to the west coast, on the summit-level and found everywhere the same appearance as on the coast. The whole country affords incontestible appearance of upheaval. but varying in different districts, being greatest towards the north, where the rise has been found from 600 and 700 feet, near Christiana 400 feet, and at Uddevalla 200 feet. The elevation, however, has been found neither uniform nor continuous; what is now rising was once sinking, interrupted by long intervals of rest. Near Uddevala on the western coast, on removing a shelly stratum from a mass of gneiss more than one hundred and fifty feet above the sea level, barnacles were found clinging so closely to the surface that portions of the newly exposed rock came away on detaching them. Other zoophytes were also met with in considerable numbers, of the same peculiar dwarfish structure as those at present existing in the gulf of Bothnia. The finding of similar shells at places seventy miles from the sea, in the interior of the country, divests the instance here referred to of anything like an accidental character; and proves most satisfactorily that this part of the continent has lain for a long time below the sea, while accumulations have formed above it.

Perhaps the most interesting fact noticed by Mr. Lyell is the discovery of a wooden fishing hut, at a depth of sixty feet beneath the surface of the soil. during the excavations for a canal to unite lake Malar with an inlet of the Baltic. The structure was about 8 feet square; the walls crumbled away on exposure to the air, but the floor timbers remained sound. There was a rude stone fire-place in the centre, with fragments of half-burnt wood, and outside a heap of wood piled up for fuel; not a particle of iron appeared to be used in the construction of this singular building. It was compactly buried in fire sand, on which coarse gravel and large boulders in wavy strata were super-imposed. It has been shown that the submergence if caused by a sudden inundation, would have left the boulders, as the heaviest portion of the materials at the bottom, instead of where they are now found at the surface—a position in which they have been deposited by floating ice. And we learn from this remarkable fact, that since the building of fishing huts in Sweden, the land where the canal is dug, has sunk during a period long enough for the deposition of strata sixty-four feet in thickness by the sea, and has subsequently been raised to its present elevation.

Expansive Action of Steam.

The usual method of computing this effect neglects the influence of the variation of temperature, which always accompanies change of density, and which has been shown to modify corsiderably the corresponding pressure. M. de Pambour, however, has, by combining Guy Lussac's formula for the relation between temperature and density under uniform pressure, with that of Boyle for the relation between density and pressure under uniform temperature, from which any two being given, the third may be deduced.

By combining this formula with one by Mr. Scott Russell, expressing the relation between the pressure and temperature, and by this means to eliminate the latter. and obtain a formula containing only the pressure and density. From this formula another was easily obtained, showing the total dynamical action developed during expansion from one pressure to another, and the results have been were given exhibiting—

1. The pressure in lbs. per square inch.
2. The relative volume, or ratio of the volume of steam, to that of the water which produced it.
2. The dynamical effect before expansion, or the number of lbs. raised one inch by the evaporation of each cubic inch of water.
4. The dynamical effect during expansion or the number of pounds raised one inch by the steam produced from one cubic inch of water in expanding from a pressure of 100 lbs per square inch to the particular corresponding pressure. The dynamical effect in expanding from any one pressure to another, must be clearly expressed by the difference of corresponding numbers.

The results as above ascertained, should not fall far short in the case of engines of good construction.—*J. M, Heppy, C. E.*

Illustrious Mechanics.

Zeno, the famous Bishop of Constantine, who had the largest diocese of that country, was a weaver. He directed his attention to the habits both of soul and body.

Stephen Tudiner a hatter in upper Austria was made general, and commanded sixty thousand of an army. He made hats for others but preferred himself a chapeau.

Walmer, a shoemaker, succeeded him in command but was slain by Count Papenheim. He converted his awl into a sword, "and his last state was worse than the first."

Mr. Edmund a baker of Sterling in Scotland, showed such unparalleled bravery, in the Swedish wars, under that thunderbolt of war, Gustavus Adolphus, that he was made General. A maker of bread might be supposed to know how to rise.

Peter the Great, Emperor of Russia, worked at ship-building. He learned the Russian Boor how to manage a boat.

Charles II of England, was a turner in ivory nor could the affairs of State divert him from his morning task at the lathe. He turned his mind however to other amusements which tasked his health and pared away his reputation.

Louis, XIV. of France, was one of the best watchmakers of his reign. He forgot the burdens of power in following the light footsteps of time, and escaped the flutterings of parasites on the pinions of chronometers.

William IV. of England was a sailor, and rose from the forcastle to the throne; he managed the ship of State with nautical address, and beat her a considerable way up the harbor of Reform.

Benjamin Franklin was a printer, philosopher and statesman. He drew lightning from Heaven, and left his name in large caps upon the annals of his country. His spirit is among the *****

Ancient Paintings.

A magnificent paint ing representing Generals Washington and Greene at the death bed of General Rahle, has been suspended at the east end of the Senate Chamber, of the New Jersey Legislature, by Joseph C. Potts, Esq. with the consent of the Senate. The colors are life-like, and the figures expressive and well proportioned. The scene is the interior of the building now ocupied by Nicholas Bendle, in Warren street; and known as the city hotel—the Headquarters of Gen. Rahle at the battle of Trenton.

The Fate of Genius.

Robert Page the once celebrated engraver in London has just met with a most melancholy end, He died in the great metropolis at the age of sixty, of starvation. He lived in a miserable room at Bethnal Green. The only furniture in it consisted of a broken chair and an old bed, on which lay the skeleton frame of Page. A policeman was passing the house and heard the cry of "murder." He entered and found Page in a frantic state. He said to the policeman, "I am a poor man, I am starved; I have had no animal food to eat for three months." The policeman went for a surgeon, and when he returned, Page was dead, One of pages relations keeps a carriage, and his sister is a partner in a banking establishment, yet this old man who had gained celebrity in his profession, is permitted to die of starvation. It is almost incredible but such is the awful fact,

A Young Artist.

Mr. J. C. King of Boston, a young Scottish artist, has executed a bust of Dr. Woodward, so much respected by the citizens of Worcester, Mass., who ordered the bust. It is cut from a beautiful block of the finest Carrara marble, and, aside from the admirable likeness and fine and truthful expression of countenance, is well worthy of examination, merely on account of its excellent mechanical execution. The bust has been exhibited for three or four weeks past, in Boston, and has been visited by great numbers of people, and among those best qualified to judge of works of art, there has been no diversity of opinion as to its merits as one of the most successful efforts of the kind yet attempted in this country. The artist has for some time been distinguished for his skill in cutting cameos, a branch of art of comparatively recent introduction in this country, but which has already been brought to a high state of perfection.

May young King's fate be sunny and bright and may we never have the pages of our history darkened with the records of such scenes as that described in the preceding article.

A Marvellous Gourmand.

A most remarkable case of gourmandizing occurred in the city of Augusta, Geo. The subject was a middling age and sized negro man weighing about 150 lbs., who in the short space of two hours ate and drank at the usual hour for breakfast, the enormous quantity of provisions comprised in the following list, viz; 13 cat fish, 2 shad, 18 biscuit. 40 flat cakes, 1 1-2 lbs. butter, 6 links sausages, 23 eggs, 30 ears of corn, 2 slices beef steak, and two of liver, 1 gallon back-bone stew, 1 large plate of rice, 19 cups of coffee, and one pint of brandy The inconvenience attending this experiment was so trifling that he immediately walked to another part of the city and ate 17 water melons, expressing a desire to partake of more could they have been found. It may be proper to add in connection with the above, and it would seem strange, too, that as regards his ordinary habits of eating and drinking, he is remarkably abstemious.—*Ex.*

The strangest part of the story is, how the fellow came to be able to eat more than he weighed himself, a circumstance easily discovered by calculating the probable weight of the articles devoured. But mammoth hogs and mammoth gourmands are peculiar critters.

Idols Made in England.

"I have been informed," says a missionary to India, "that some merchants in Birmingham have make a good speculation lately, in manufacturing idols of brass for the India market, for which they found a ready sale. It was mentioned to me as a fact last year, that two missionaries were embarking for Calcutta on board the same ship which carried several chests filled with idols."

The Maid of Orleans.

An equestrian statue of Joan of Arc, by Foyatier, is being erected on the place Matrois at Orleans. Joan is seated on horseback, clad in complete armor, a helmet upon her brow, and her hair falling on her shoulders, the moment is, when the English fled before her.

The number of copies of the Bible and Testament which have been issued by the Bible Societies is about thirty millions.

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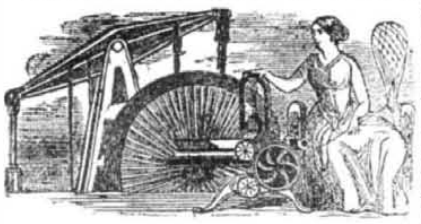


New Inventions.

An Auxilliary Anchor.

Mr. John Holmes, of Holmes' Hole, Martha's Vineyard, has projected an auxilliary anchor to be used in cases of great danger, when the anchors of vessels may be dragging. We have seen a drawing of it, which is now at the office of the Union Mutual Insurance Co. Wall street, this city. It appeared to us that if adopted and used by all vessels, it would be the means of saving hundreds of lives every year. It is to be made of cast iron, with a turtle shaped back on which are two standards with clasp eyes which are to be clasped round the cable and to slide gradually down along it by the pitching of the vessel. The under part of it is flat with a spring fluke, which projects on the point and holds like the fluke of any other anchor. To seafaring men the nature of this invention is apparent, and as the inventor is a person long and intimately acquainted with the danger of a vessel's being on a lee shore and dragging her anchors, it is to be hoped for the sake of humanity, that it will arrest the attention of Underwriters. We believe that measures have been taken to secure a patent.

New Cannon.

At the Empire Works of this City there is at present a new kind of cannon being constructed, which is a novelty in its way.

"It is lighter and stronger than any ordnance yet in use, can be made of any size and power, for harbor and fortress defence, and has, withal, the virtue most needeed in Mexico—it can be carried anywhere that man can get, up and over the highest mountains and most rugged passes. It is made of plates and bolts, in such a manner that a twelve or a hundred pounder can be taken apart, packed on mules or men's backs to the desired spot, and in fifteen minutes be put together for certain and deadly purposes."

Machine for Cutting Soles.

Mr. C. D. Bigelow, of Marlboro, Mass., has invented a machine for cutting out soles for boots and shoes of every size and shape. The soles are cut out with the holes for pegs all punched, so that the peg awl will be entirely dispensed with, if some arrangement can be made to punch the inner sole. This will be a machine of great benefit to boot and shoe manufacturers and we believe it can be got up at but little expense, as it is very simple. The inventor we are informed has taken measures to secure a patent.

Lath Machine.

A machine for splitting laths, the invention of Mr. Winslow of Cincinnati, has been put into operation in Southwark, Pa. It is the first of the kind put up east of the Alleghanies and has surprised the good mechanics of Philadelphia.

A huge log, is placed in the machine, and by the means of two knives, one working perpendicularly, and the other horizontally, the laths are cut from the side of the log which is pushed around by the machinery, so that the laths are of a uniform thickness and width. It is driven by steam power and will cut the laths at the rate of two hundred a minute.

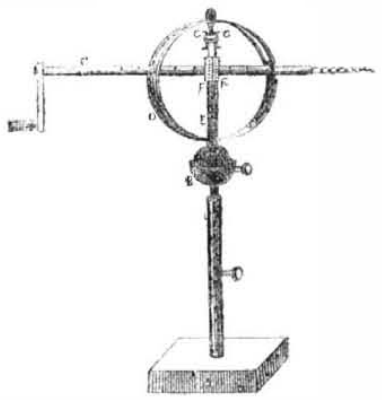
Machine for Turning Irregular Surfaces.

We learn by the Gardiner, Me., Fountain, that Mr. W. M. Davis of that town has invented a new and important machine for turning Lasts, Gunstocks, or any other irregular form. This machine is a great improvement on Mr. Blanchard's old machine, and it will be a great public advantage, coming as it will, in competition with the old machine used for the same purpose. This machine is simple in its construction, entirely superseding the necessity of using one last to form another by.

New Hemp Brake.

The Louisville Journal and the Maysville Herald, Ky., are diligently calling attention to the importance of Western manufactures, and the developement of the resources of the valley of the Mississippi. By the latter paper we learn that Dr. Levitt has lately invented and put in operation in that place, a new Hemp Brake, which breaks unrotted hemp, and which the Herald thinks is destined to bring about at once a great and most important revolution in the hemp business of the West. The editor has seen it at work for hours, and pronounces it a wonderful machine, breaking and cleaning at the rate of 2800 pounds of hemp in 24 hours. Dr Levitt is a gentleman of a very inventive mind, and has devoted all his thoughts and labor for the last three years to the subject of breaking and spinning of hemp. In the prosecution of his investigations he visited England, Scotland and Ireland and for a thorough knowledge of the whole subject he is said not to be surpassed by any man living.

Ship Carpenter's Augur.



This is a very ingenious instrument, invented by Richard Coffin, of Haverhill, Mass., and the following explanation will convey an idea of its uses.

A, is the foot. D, is the frame. C, is a rod and crank attached to the augur H. B, is the cup and head. E, is the spring. G G, are two rods for the purpose of disconnecting the catches F F, from the rod C.

If you wish to bore, pull the spring E by the handle to the left; shove down the left hand rod G, to disconnect the left hand from the rod C. The right hand catch holds the spring and throws its power towards the augur H, and so on; the cup B allows its balls to roll in the frame and augur in any position and the thumb screw will hold it in that position; the other thumb screw is to hold the slide which elevates or depresses the augur.

Measures are in progress to secure a patent.

Electric Light.

We learn from the Buffalo Commercial Advertiser, that Mr. B. Adams, of that city, has discovered a method of producing permanent light from electricity. It is made from metals, and within a glass vase. The battery is of such a nature as to keep up a constant flow of electricity. If all the proportions are right and the material used is as large as can be obtained within a glass vase one foot in diameter, the light, placed in a suitable position, will be seen for miles around. The intensity of the light is said to be such that one will light the city as perfectly as daylight. The whole apparatus for making a light of this magnitude will not occupy three feet square. It can also be made on a small scale for churches, and dwelling-houses. The expense is stated to be very trifling, compared with that of any other light. Mr. Adams has already applied for a patent.

Self-adjusting Car-Shackle.

Mr. Dr. R. Pratt, of Worcester, Mass., has invented a new self-adjusting car coupling which, the Telegraph says, is so constructed that two cars run together for the purpose of being shackled must of necessity become so, without the aid of any person, as the iron link for connecting the cars inserts itself surely and firmly within the grapple. The invention also includes an attachment by which any part of the train may be instantly unshackled from any car while in motion.

We have seen a number of inventions lately for this purpose, but we are not aware of any of them being in actual use superseding the old links, although some of them we consider to be superior, and others that we have seen instead of being new and useful improvements, were the reverse.

An Electric Gun.

The following account from the pen of J. R. Nichols, Esq. of Haverhill, Mass., describing a machine which he has invented, and which we have seen noticed in some of our exchanges, will be read with much interest by all our subscribers, as they are all interested in scientific matter and as one wrote unto us last week from Ohio, "Ever since I became a subscriber to the Scientific American I have gone on steadily increasing in desire for scientific knowledge, and I look into the Post Office every Saturday night hungry for my weekly scientific repast." Mr Nichole says:—

"I have placed together two plates of metal of a circular form six inches in diameter and separated about one inch from each other. This space is partially occupied by six metallic cylinders or barrels about three inches in length and one in diameter. These all rest very nearly against the centre of the plates, their mouths terminating at equal distances from each other. The plates and cylinders thus arranged are firmly rivetted together and the whole made to revolve in a vertical position. Through one of the plates and of each barrel at the breech, is a screw, through which passes two short pieces of wire insulated from each other and joined at the ends by a fine piece of platinum wire. These wires protrude from the plate and are so arranged that while the machine is revolving they come in contact with the poles of a small magnetic battery. The machine is moved by the power of a revolving armature engine. The power thus derived is hardly adequate to produce the desired effect with certainty, and I have substituted machinery somewhat similar to clock-work.

A tube is fixed over the machine in which is placed a charge of gun cotton pressed upon by a leaden ball; over that ball is another charge of cotton with a ball; in this way the tube is filled. By means of a slide at the bottom, a charge of cotton with a ball is let into each barrel when in a vertical position, and the barrel is discharged immediately at any elevation, by the bright metallic surfaces of the wires coming in contact with the poles of the battery. The gun cotton explodes at a temperature of 360 F. The explosion is certain, as the passage of a current the platina wire from a very feeble battery instantly produces a much higher temperature than that.

This is a very imperfect description of a very simple contrivance. It has seemed to me of late that a machine of a similar character might be constructed which would prove terribly destructive as an engine of war.

There are quite a number of objections to the machine I have described, but I intend to pursue the subject and make such alterations and improvements as may occur to me.

J. R. Nichols.

[It was at our request that Mr. Nichols furnished us with the foregoing description of his invention, regarding the merits of which he expresses himself in a very modest and unassuming manner.

New Rope Machine

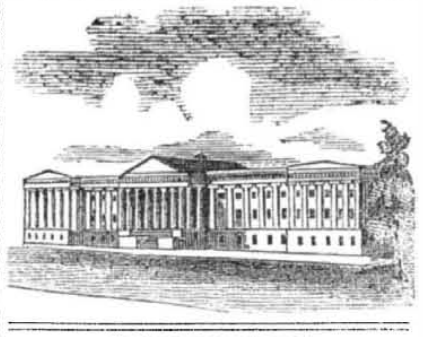
Mr. J. Morrison, of Harrisburg, Pa., has invented a new machine for making rope.—We have been informed that the space occupied with it for making tow lines and bale ropes will not exceed 8 feet square, and for 2½ inch rope he estimates that a room 18 or 20 feet square will be quite large enough.

Pianos.

Mr. Pethick of this city, has made some very important improvements in the construction of Pianos, for which he is going to secure a patent in England.

Nice Balancing.

In describing the Philadelphia Mint, the North American says:—"We saw a pair of large scales, built of Gothic gold, which are in hourly use in weighing lots of five dollar pieces, turned palpably by a piece of fine letter paper, not so big as a dime."



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending Feb 8, 1848.

To Lewis Tupper, of Genoa, N. Y., for improvement in machines for compressing fleeces of wool. Patented Feb. 8, 1848.

To Daniel R. Pratt, of Worcester, Mass., for improvement in drawing rolls for spinning machinery. Patented Feb. 8, 1848.

To Solyman Merrick, of Springfield, Mass. for improvement in Revolving Spring Punch. Patented Feb. 8, 1848.

To John Barker, of Baltimore, Md., for for improvement in air heating Furnaces.—Patented Feb. 8, 1848.

To William Baker, of Utica, N. Y., for improvement in Sash Fasteners. Patented Feb. 8, 1848.

To Rufus Nutting, 2d., of Romeo, Michigan, for improvement in Piano Organs. Patented Feb. 8, 1848.

To George S. Bosworth, of Boston, Mass., for improvement in Cooking Stoves. Patented Feb. 8, 1848.

To William De Haven and William Umholtz, of Minersville, Pa., for improvement in Coal Breakers. Patented Feb. 8, 1848.

To William E. Maginnis, of Philadelphia, Pa., for improvement in Ladies Corded Skirts. Patented Feb. 8, 1848.

To William Rogers, of Philadelphia, Pa., for improvement in moulding Hollow Ware. Patented Feb. 8, 1848.

INVENTOR'S CLAIMS.

Spinning Machine.

By Matthew W. Obenchain, of Springfield, Ohio. Improvement in machinery for spinning Patented 11th September, 1847. Claim—What I claim as my invention and desire to secure by letters patent is, First, giving to the first set of draw rollers an intermittent motion in combination with the second and third sets of draw-rollers made with segments to draw alternately, and substantially as described. Second, I claim giving to the series of guide-rollers an intermittent reciprocating motion to take up the slack of the roving, and then to give it out, substantially as described, in combination with the intermittent motion of the first set of draw-rollers as described. And I also claim in combination with this, giving to the guide rollers an intermittent rotary motion to prevent the breakings of the rovings by friction as described. And finally I claim hanging the third set of draw rollers in a sliding frame, substantially as described, provided with the most reqisite mechanical agent for moving it during the operation of spinning, whether this be rack or pinion, or other mechanical equivalent whereby the amount of twist to be given to the threads that are being drawn and spun between the rollers, can be regulated at pleasure by the attendant as described.

Carriage Bodies.

By Charles I. Woolson of Cleveland, Ohio. Improvement in hanging carriage bodies. Patented 11th September, and dated 11th March 1847. Claim.—What I claim as my invention and wish to secure by letters patent, is connecting the "cradle spring" (so called) or the single steel spring, similar in form to the half of an elliptic, to the forward axle of carriages or wagons, as points near the hub, so as to have the spring form the rocker and turn with the axle, and transfer the weight from the middle to the ends of the axles, as described, when this is combined with the body of the carriage by means of the fifth wheel attached to the spring as described.

The Santa Fe Republican of November 13, says that the potatoe grows wild in the mountains near that place.

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NEW YORK, FEBRUARY 19, 1848.

The Cast Iron Plough.

We have received a great number of communications from respectable farmers and plough makers respecting a Bill which has recently passed the United States Senate and is now before the House of Representatives, to extend the patent of Jethro Wood for seven years. The bill is a proposition to grant to the heirs of Jethro Wood the privilege of exacting fifty cents from the manufacturer of every cast iron plough made in the United Sates after the passage of the bill.

Mr. N. Moore, a plough manufacturer at Champlain, N. Y, informs us that it has already been extended fourteen years, in all twenty-eight years last August, " and that contributions have been levied to an immense extent upon plough manufacturers." He himself paid two hundred and fifty dollars last winter under " a threat of proceedings being instituted against him in the United States District Court."

We have been informed that an immense influence has been brought to bear to get the bill passed, and as our law makers are extremely ignorant regarding all that relates to Patents, it is to be feared that the bill will be pressed through the House of Representatives and become a law, as recklessly as it has been crowded through the Senate Chamber of the Republic. On another page will be found a letter from the pen of A. B. Allen, Esq., of this city, giving a history of the cast iron plough and examining the merits of Wood's case. It was published in the New York Tribune of the 10th inst., and is worthy of a careful perusal.

Congressmen and the Patent Laws.

In relation to business connected with Patents and Mechanical operations, it is to be feared that the majority of our Congressmen are not fully acquainted with the wants of those interested in the Patent Laws.

Last week a bill from the Senate to appoint an examining officer to the Patent Office at a salary of $2500, with assistants at $1400, was taken up. A motion was made to refer to the Committee of Ways and Means.

Mr. Pettit, of Indiana, opposed the reference He said that at present six months time is lost before the patentee can have his claims considered. He was in favor of adequate salaries, to men of talent, in a department of the government so intimately connected with the progress of science and art, and the developement of the resources of the whole Union.

At present, he said, there is a surplus of $20,000 a year paid into the National Treasury from the Patent Office. All this money comes out of the pockets of the inventors or patentees. One dollar of the proposed additional expense need not come out of the Treasury. It will be paid by inventors for whose benefit the increase of officers is required.

Mr. Hill, of Tenn., while he concurred in the measure wanted to know who was to have the appointment of the proposed offiers—was it the Commissioner of Patents? Also, he wanted to know how the revenue of the Patent Office was appropriated?

Mr. Pettit's idea was certainly a queer one. Talent, talent, what is it? It is too commonly considered that a man who is what is called smart, is fit for any situation. Talent in the Patent Office is not worth much without practical experience and plodding habits.

We hope that some reform will be made and that quickly.

Steam Boiler Guage.

Since our last number was issued we have examined the Report of a Board of Examiners appointed by Congress in 1844, to make experimental trials of inventions and plans for preventing explosions on steam boilers.

The Board reported that they had come to the conclusion, from abundant testimony, that there were but two causes for explosions, viz. want of water in the boilers and by incrustation from salt. The latter cause, is no cause at all, but the first is certainly one cause of explosions The Board reported in favor of Mr. Barnum's Steam Boiler Guage, an engraving and description of which appeared in No. 3, vol. 2, of the Scientific American.

Believing from the tone of that report that Barnum's Guage must have been extensively adopted by this time, we have made many enquiries on the subject and have been not a little chagrined to find that only two or three fair trials have been made with it. It was used on the experimental trip of that failure, the Water Witch, and it was certainly unfortunate for Mr. Barnum's Guage to have been connected with it. But although the engines and vessel behaved so badly, S. S. Bartholomew, 1st Assistant Engineer and W. F. Mercein, 3d Assistant Engineer, pronounced a high eulogy upon the Guage, stating in their letter of the 1st Nov. 1845, to Mr. Bancroft, Secretary of the Navy, that " it always gave sure indications of the height of the water in the boilers under every circumstance." The letter further states that they " invariably found the indications given by the apparatus to have been correct."

We suppose that the only possible reason why this guage has not been more generally adopted, is because it creates a primary expense in the construction and application to steam boilers It will be well to see to it, that penurious steamboat companies should no longer be allowed to endanger valuable human life for the sake of filthy lucre.

The St. Louis Association of Steamboat Engineers, have reported that the cause of the explosion of the Planter was owing to imprudence, negligence or ignorance in the engineer. This is too general a decision. Any body of men, though not engineers, could have made the same report. We want a scrutinizing examination, one that will explain all the circumstances connected with explosions. We know that it is not very easy to get this.

A letter appeared in the National Intelligencer, on the 31st of last month, ascribing the causes of explosions principally to carelessness and bad metal in the boilers,—" that they sometimes stop half an hour at a place and the steam all the while accumulating." This is true, but the engines of many of our Western boats are so geared as to work the pumps while the boat is standing, so that if there is not too much weight on the safety valve, there is no danger from standing still. Carelessness, however, is the main cause.

American Hemp.

A short time ago a sample of American water rotted 1 3-4 inch rope was tried at Louisville, Kentucky, by John Smith, Esq., United States Hemp Agent, and bore the most astonishing weight of 5470 pounds. It was made out of a promiscuous selection from five different bales, and of 100 pounds of hemp it yielded 84 pounds of clean hemp, 10 per cent of tow and 5 per cent of waste. The rope was made of out of the clean article that stood the above test and was hand-spun by Mr. Robbins, an able spinner of that place.

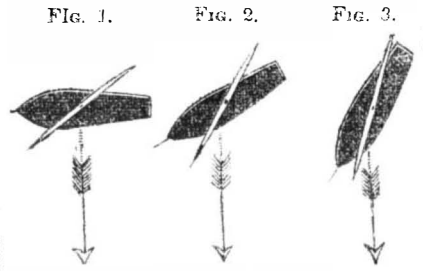
The Government standard for a rope of the above size is that it shall not lose more than sixteen per cent of tow and waste and that it shall bear 4200 pounds. This is regulated by the best Russian hemp. Our hemp therefore is a far superior article to the best Russian hemp. On the 28th of last month some cured unrotted hemp by J. T. Crooks & Co. of Maysville, Ky., was sent to Mr. James Munroe, manager of Mr. Arthur's rope-walks, with a request that he would make two ropes, one of cured hemp and one of a good quality of dew rotted hemp, with a view to a test of strength. Although he endeavored to make them of one size, the dew-rotted proved one-tenth of an inch larger in circumference, being 1 3-10 inches while the cured was 1 2-10 inches. Pieces of 12 feet in length were cut from each and each piece weighed 8 ounces. The rope of cured unrotted hemp parted at 1,886 pounds, the dew-rotted parted at 1652 pounds; the cured unrotted stretched 9 inches, the dew-rotted stretched 14 inches.

These ropes were superior to the experiments made at the Government Hemp Agency in 1844 on the water-rot, Russia, or steam hemp. This is encouraging and cheering to our Western growers and manufacturers of Hemp.

Indirect Action of Wind.

These three diagrams represent three vessels sailing in different directions and the positions of the sails are represented by the cross spar on the deck of each—the arrows indicating the direction of the wind. In Fig. 1, the position of the vessel is at right angles with the direction of the wind, while the sail is at angle of 45 degrees. It will not be difficult to perceive that by the composition and resolution of forces the form of the vessel is such as to move forward in the direction of its keel with considerable velocity. The position of the vessel Fig. 2, is at an angle of 60 degrees with the wind, while that of the sail is only 30 degrees, and therefore its tendency is also at angles with the vessel's direction of 60 degrees, and as the vessel cannot sail against the direction if its keel, (leeway always excepted) the vessel in this case moves forward more readily than it could backwards. In Fig. 3, the effect of the indirect action of the wind on the sail is illustrated by an extreme case. The position of the vessel being at an angle of only 30 degrees, while that of the sail is only 15 degrees with the direction of the wind. In this case the tendency of the sail is at an angle of 75 degrees with the direction of the vessel, yet with a variation for propulsion, (although the edge of the sail is nearly in a direct line with the wind) to propel a vessel with considerable velocity if she is well trimmed. The force exerted by a moving fluid on a stationary object, is precisely the same as its resistance to a moving object. The above diagrams represent merely the propulsion of vessels in different directions through fluids by a force in a given direction, not the nautical science of trimming the sails to ensure the greatest velocity, as the spars are trimmed per contra to the known practice.

Fig. 1. Fig. 2. Fig. 3.



Copper Mines of Missouri.

Large discoveries of copper have recently been made in Franklin county, Missouri, and the mines are represented to be very rich in ore. The " Miner's Prospect" says that the ores are very easy of access and that two men can raise from five to ten thousand pounds a day, yielding about 85 per cent of pure copper. The first discovery is located on the Merrimac river, about twenty miles from Union, and is owned by Messrs. Bredell, Gamble & Co. of St. Louis. The second, more recently made, is about fourteen miles from Union, and owned by Messrs. Hearst, Philips & Co. Besides these, there are many smaller prospects owned by different individuals, and scattered throughout the scope of country lying between the Burbois and Merrimac rivers. Both of the above mentioned companies are erecting furnaces and making extensive arrangements suited to develope the mineral resources of that region.

A Floating Population.

In the Atlantic Dock Basin, opposite this city, there are now moored for the winter upwards of 500 canal boats. Many of these boats are occupied by families, and to accommodate their spiritual wants, the commodious passenger steam ferry boat Olive Branch, belonging to the Fulton Ferry Company, has been fitted up as a church.

The inhabitants of our canals are a singular race and in the course of one century from the present time, they will exist among us as a distinct and separate people in manners and customs. Our great inland navigation will necessarily classify those who follow after it as a profession. At present their morals are very lax, like all who lead a wandering life.

John Neilson, editor of the Quebec Gazette, and the oldest editor on this continent, is dead.

Manufacture of India Rubber Goods.

At Harlem, near this city, there is an India Rubber manufactory, where about 150 women and 50 males are employed, and where military equipments are made in no small quantities. The raw rubber is first cleanly washed, and after being dried is ground between two large cylinders under an immense pressure, heated by steam, heated so hot that the rubber looks as though it were burning. While it is grinding a preparation of turpentine is mixed with it to dissolve the rubber. The rubber comes from the roller a black mass, which is transferred to rollers of still heavier pressure where it is ground again under a strong heat; thence it goes to a third roller to be heated ready to be put upon the cloth; this is done by a powerful set of rollers. The rubber thus prepared, is put upon the rollers and distributes itself evenly, at any thickness desired; the cloth is then put upon another roller that passes under the rubber, which, under great pressure, is forced into and through the cloth, no matter whether silk or the stoutest sail duck, it goes through. A coat is put on the other side in the same way. and no power can separate the mass after that. The cloth is then taken to the room where it is made into an infinite variety of goods to which it is adapted. The goods are cut out by patterns, and after the edges are covered with rubber cement they are folded together and rubbed down closely, and soon become so closely fixed that any part will separate before the seams; there are in fact no seams, all is rubber without a particle of other fastening. After they are all fastened the whole article is covered with powdered sulphur, and taken to be cured: this is done by placing them upon an iron railroad that passes into a large cylinder, where they are subjected to the action of steam at a hign temperature, which cures them and completes an article that is affected by no temperature, and which will outwear iron itself. The goods taken out of the heater are boiled in strong potash lye and then washed, which leaves them ready for sale. The sulphate of lead and sulphuric gases are also used to cure or vulcanize the rubber. The goods made by this machinery are elegant, and the operation of making them is very simple and yet complete.—The invention is Yankee, and no nation can approach us in this kind of work yet.

Mr. Robert Hoe, of this city, has made contracts to build two Printing Presses, similar to those of the New York Sun and Philadelphia Ledger's, for two Paris papers. Each is to print 12,000 copies per hour. They are to be made in this city and to cost $24,000.

John Thomas, of this city, has petitioned Congress for an extension of his patent for improvement in Floating Dry Docks, from the 25th of next March.

Samuel Colt, of Hartford, Conn., has also petitioned Congress for an extension of his patent for improvement in Fire Arms, from the 25th of this month.

Scientific American—Bound Volumes.

The second volume of the Scientific American, bound in a superb manner, containing 416 pages choice reading matter, a list of all the patents granted at the United States Patent Office during the year, and illustrated with over 300 beautiful descriptive engravings of new and improved machines, for sale at this office—Price $2,75. The volume may also be had in sheets, in suitable form for mailing—at $2.

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Reaction Water Wheels.

Mr. Editor :—In your paper of the 27th of Nov., I noticed a report of the Committee on Sciences of the Franklin Institute, Philadelphia, in answer to a series of questions by Z. Parker, of Ohio, in relation to reaction water wheels. If I rightly understand them, I differ somewhat from them in their definition of what does, and what does not constitute a reaction wheel. In their answer to the first interrogatory they say, " A reaction wheel is a wheel propelled by the pressure in the direction of the circular motion of the wheel developed by the discharge of the water in a contrary direction." Now I suppose this to mean that the fact of the water's discharging in a contrary direction to the wheel developes, " unravels and makes known what was hid before," (as Dr. Webster would have it,) that the wheel owed its motion to *reaction*. Now in my humble opinion this may be so, or may not be. It is admitted that the water invariably discharges from a reaction wheel in a contrary direction to the circular motion of the wheel. But there are other wheels which discharge the water the same way, and yet, are in no way propelled by reaction. In a well constructed tub wheel the water flows out at the bottom in a contrary direction to its motion, and is " propelled by the pressure in the direction of the circular motion of the wheel," yet it does not *develope* the fact of its being a reaction wheel.—The same may be said of the turbine, and many others of a similar construction. In an able article by Ellwood Morris, Esq., of Philadelphia, on reaction water wheels and turbines, published in the Journal of the Franklin Institute, Oct. 1842, he defines a reaction wheel to be, one " where the water has free entrance to the circular space within the wheel, and spouting out of the openings between curved vanes, impels the wheels round in a backward direction by its reaction against the vanes, issuing with velocity from the wheel." I think no better definition of a reaction wheel could be given in so many words than this. In order to constitute a purely reaction water wheel, a number of things are necessary. First, the water should discharge in a contrary direction to the circular motion of the wheel. Second, the water should have free entrance to the centre of the wheel, without being turned out of its course, so that it can press with the full weight of its head towards (not in another direction) the openings in the wheel, with its full velocity. It is the case with every wheel now in use worth using that the water is conducted by spouts or scrolls so as to impinge, or press against inclined planes or angles whose bases are the radius of the wheel, with a velocity acquired by the head above, and is thus made to move the wheel forward until it acquires the greatest velocity, that portion of the water then falls nearly inert from the wheel. Where wheels are driven alone by reaction, the wheel represents a circular cistern containing the water, the issues, portions of the walls taken away, the water rushing out of these openings reacts upon the remaining portion of the walls (the buckets or curved vanes) with the same power and velocity, that it would spout against the surface, if the cistern or wheel stood still. The co efficient effect of a wheel driven by impulse or percussion, is known to be but about .4 of the whole power of water, and the maximum motion of such wheels one half the velocity of the water under a given head, spouting in vacuity. Now it is clear, that the action and reaction are equal, and no greater power can be obtained by the same agent by reaction than by action ; therefore, the mechanical effect of a reaction, and a percussion wheel (rightly constructed) must be the same : but the co-efficient, or power of many wheels supposed to be driven by reaction is from .6 to .8 of the whole power of the water, yielding double the amount of power to a percussion wheel And again, water under six feet head will spout in vacuity only about 1200 feet per minute, yet many wheels supposed to be reaction wheels that I have seen, will move at the point of impact, with once and a half that velocity, and yet the water " propels the wheel in a contrary direction to its discharge." I consider most of the wheels of this class, driven by the water pressing upon inclined planes, or angles, deriving much of their power from the force of the water coming into the wheel, and not (as in reaction) going out. I would here remark, that the motion of these wheels are, as the inclination of those angles or planes to the radius of the wheel, or in other words a wheel whose buckets or tubes lie nearer parallel with the circumference of the wheel, will move faster and with less power than one with the buckets lying nearer parallel with the radius of the wheel.

(*To be concluded.*)

Extraordinary Phenomena.

The Rev. James Whitman, a respectable Unitarian clergyman, lately deceased, at Portland, Maine, and the circumstances attending his death were the subject of much curiosity. His body underwent a post mortem examination and in laying open the breast and exposing the heart and lungs to view, the physicians were astounding at finding the heart located upon the right side and the liver upon the left. The spleen was also found upon the right side, presenting a *lusus naturæ* of remarkable interest to the naturalist and physiologist But this reversing of the organs had nothing to do with the disease which terminated his useful life. Until pleurisy set in, the heart, lungs and spleen performed their functions with perfect regularity, and the reversed order of their location did not injure his health in the least degree; for the heart performed its office just as well upon the right side as it would upon the left, and the lungs suffered not by being located in an unusual place. This was a congenital malformation, and this good man has lived half a century with his heart upon the right side and his lungs upon the left side of his frame.

Health of Factories.

In a very able report on the sanatory condition of the borough of Sheffield in England, by James Haywood, a professional chemist, and Wm. Lee, civil engineer, the health of the work people employed is very carefully considered. In the process of grinding, minute particles of metal and stone are thrown into the air, and are inhaled by the workmen, producing disease to a fearful amount—and especially the malady known as the " grinder's asthma," of which at one time, nearly fifty per cent of the work people died under forty years of age. But the mortality from this cause has been greatly reduced by the employment of the *Ventillating Fan*, which is placed in a round box, and turned by means of the drum which causes the grindstone to revolve ; a strong current of air is thus produced, drawing the particles of steel and grit-stone from its face, and conveying them away either to the top of the building, through the sides, or into a vessel of water below. The report makes honorable mention of Dr. Holland, by whose recommendation, at a time when the subject was little understood, the importance of these fans was urged upon the workmen and their employers. In one establishment, where the fans are employed, dry grinding has been carried on for twenty years without producing the least injurious effect. The cost of the instrument complete is *forty two shillings*, and yet a great number of the dry grinders are without it, although the most ignorant of them acknowledge that if it were used as extensively as it ought to be, the fatal disease called the grinder's asthma would be unknown to the next generation. If working men fully estimated the importance of these matters as affecting their best interests, they would all be earnest sanatory reformers.—*Jerrold's Newspaper.*

[This invention should be used in all our axe factories. There is no excuse for the saving of a little expense where health is concerned. Now we know that no means are used in a number of our axe factories where all is done by dry grinding, to prevent the dust being thrown in the air and inhaled in the lungs. This is also true in regard to numerous other occupations.

Great Times.

The papers of Rutherford county Tenn., are boasting of the great times they had there during the Christmas holidays Among other causes of rejoicing and merry-making there were thirty-eight marrriages.

Ventilation of the Capitol at Albany.

A special Committee presented an able and useful report to the Assembly, on the 21st., ult., on ventilation. After explaining the following plan and the extent of the injury sustained by members in their health, by the present inefficient system, the Committee estimated the cost at $5,000, the time necessary for having the apparatus ready for action at two or three weeks, the saving of fuel more than half, beside a much less risk from fire.

A steam engine is provided of sufficient power to drive a revolving fan of suitable dimensions to move with force and velocity a quantity of air sufficient to supply the inmates of the apartment to be warmed and ventilated. The atmosphere thus put in motion is conducted through the tubes enveloped in steam of a temperature not exceeding 212 degress Fahrenheit, by which means it will imbibe a genial heat, and will not, as by the existing mode, become burned or decomposed. When thus heated, it is proposed to conduct the air into a mixing chamber of brick-work, say 20 feet sqare, to accomplish which, and to set the engine, there is ample unoccupied room in the basement, and thence conduct it by tubes into the various apartments of the building to be heated and ventilated.—By this mode the quantity, the degree of heat, and the amount of moisture with which the air should be softened will be entirely under control of the engineer, and not in the slightest degree mixed with any of the deleterious gases, that in different ways escape into the apartment in the use of any of the ordinary modes of burning coal, while at the same time it will diffuse heat and comfort equally in every part of the room. From the force with which the atmospheric air will be pressed by the revolving fan, there cannot as now, arise an exhausted and highly rarified state of the air in the room, by which means our present ventilators perform a doubtful duty, it being quite uncertain whether our ventilators do not let in more cold air than they let out of that which is vitiated and heated. Instead of admitting the rush of cold air when a door is open the pressure of the air from within will cause a rush of warm air out, and change the direction of the air, that usually comes freighted with chills and catarrhs, through the casements of the windows and crevices in the ceiling Under the force of this presure, it is believed, with slight enlargement the present ventilators will faihfully perform their appropriate office, by which means so rapid changes of the air will constantly be going on as to avoid all the evil effects of a stagnant and foul atmosphere.

Proper drainage and ventilation should be carried out in all Municipalities.

Fast Color.

A lady a short time since sent an elegant dress to a dyer's with instructions that he should dye it in handsome colors, warranted not to run : and she was somewhat surprised when the garment was sent home ornamented all over with beautiful little American flags, accompanied by the following explanatory note :—

" My Dear Lady :—The colors I have selected and used for your dress, have been tried by the English the French, and more recently by the Mexicans, and as they are convinced, no doubt, that these colors always stand, I have no hesitation myself in warranting them not to run."

Exposure to the Sun.

There are few points which seem less generally understood, or more clearly proved, than the fact that an exposure to the sun, without exercise sufficient to create free perspiration, will produce illness; and that the same exposure to the sun, with sufficient exercise, will not produce illness Let any man sleep in the sun, he will awake perspiring, and very ill; perhaps he will die. Let the same man dig in the sun for the same length of time, and he will perspire ten times as much, and be quite well. The fact is, that not only the direct rays of the sun, but the heat of the atmosphere produce abundance of bile, and powerful exercise alone will carry off that bile.—*Popular errors explained.*

Beware of Gold Forgeries.

In relation to the counterfeit of gold coins, the following letter was written to the New Orleans Mint by the Director of the Philadelphia Mint.

MINT OF THE UNITED STATES,
Philadelphia.

Sir.—The counterfeit half eagle which you have sent to me is a very remarkable and very dangerous imitation of the true coin.

It is a curious coincidence that while you were examining the counterfeit half eagle, we had our attention engaged by a quarter-eagle, dated 1843, equally well imitated, and composed in the same manner. This, however, bears the O, which marks it as an imitation of the New Orleans coinage. I send you a part of it enclosed for your examination, but beg that you will return it to me. There are no dies missing of those sent to you from here as is evidenced by your reports; nor are any missing here; so that the original dies cannot have been used by the counterfeiters. We must suppose either that the counterfeiters have the services of a most skillful engraver, or that they have possessed themselves of a dangerous process, recently discovered in England, for making very perfect dies of cast iron, which are fac similes of the original medal or coin.

Very respectfully, your faithful servant
[Signed] K. M. PATTERSON, Director.

Wealth of England.

The London Times admits that " the annual saving of the nation over and above its expenses, or, in other words, its accretion of capital, is not less than fifty million pounds ($240,000,000) annually ;" and the London Daily News states that " the banking deposits and lodgments on current account in Great Britain alone cannot be estimated at less than three hundred millions," or the enormous sum of one billion and five hundred millions of dollars.

Alas then for the scientific intelligence of Britain, and the philanthropy of its wealthy men, when millions pour into their groaning coffers, and the poor languish and die from destitution in their cellars and garrets.

Respect does not follow Extravagance.

The man who takes care of his earnings is far more respected than he who squanders all in " riotous living." So with the young lady. Although she may spend her last dollar in the purchase of a new dress or a costly shawl, and follow the whims of fashion as closely as does the fashionable belle who has thousands at her disposal, she cannot make people believe she really is; and is more likely to incur suspicion as to her rectitude of character, and to keep away such good men as make good husbands, from her society, than if she lived prudently and dressed plainly.

TO CORRESPONDENTS.

" A. L of N. Y."—We shall probably be able to present an engraving of Mr. Webber's machine for turning irregular surfaces, in some future number. We could not give a description without it.

" H. B. A. of N. Y."—Your communication has just come to hand. We will give it due attention.

W. C. G. of Philadelphia."—We hope to receive your model soon, and an order for the engraving of your useful invention. The direct action of steam has not been applied, so far as we can learn, to the purpose you have written about.

"E. B. of N. Y."—Much obliged to you for your kindness. Accept friend Mac's respects. The information requested is still desirable.

" J. L. G. of Ohio."—There is a kind of repulsion between melted and solid iron, which explains the phenomona of the solid being borne up by the melted in size one-sixth of its bulk. A needle will float in water from the same cause. Take a fine needle, wipe it perfectly dry with a silk handkerchief, and lay it carefully on the top of a saucer full of water and it will float.

" J. W. R. of Md."—The mercury guage is old and in common use.

" S. R J. of Conn."—We have heard many fine spun theories regarding the arrangement of colors, but there is scarcely a practical work on the art of Dyeing that can be

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trusted. The grand panacea wanted in all that we have seen, is directions to make things right when they go wrong. Boil your overdone claret color for three-quarters of an hour in a strong solution of red tartar or white, and its offensive copper color will disappear, leaving the piece of merino a rich purple color.

" M. M H. of Mass."—You are correct — When he can create a power then he may commence to make his perpetual motion and end by experiencing the fact of his own evanescence.

" —— of Derby, Conn."—Your money was received duly, but what is your name ? There was no signature to the letter.

" R. D. Bartlett of Harmony."—Your letter containing two dollars is received, but until you, or your P. M., inform us in what State you reside, we cannot enter your name on our subscription books.

" W. M. of W. T."—Lead as a fusible plug is no safety guage.

" A. S. A. of N. Y."—It is not easy to tell the price of a second hand press such as you want. Some more, some less in price Wells & Webb, Fulton st., this city, will give you the best information, and you may get one cheaper at one time than another. No varnish superior to copal for your purpose. We know of no substitute for the crank that is preferable to it.

" R. M. of Mass."—One gallon of water converted into steam at 212° will raise five and a half gallons of water to 212°. This may seem strange, but it is a fact, old and well established. See Black on " Latent Heat."

" W. G. of Mass "—Your paddles are not new. We have seen the same plan by two different persons within two years. You must try again.

" A Chemist, N. Y."—If an injunction were served upon you by the patentee, it would only be after a careful hearing—and then if at a suit in the U. S. District Court, it could be proven that the prussiate of potash had been long made, and the process was well known before the inventor claimed to have discovered it, the patent would be set aside. The manufacturer cannot be hindered from following an old and well known process by all the new patents in the world.

Ranlett's Architect.

No. 1, of Volume 2, of this splendid work has just been issued by W. H. Graham, Tribune Buildings, price 50 cents per No. This work was projected to supply a systematic treatise on Rural Architecture and by its developments to correct a false taste and institute a more chaste and elegant style of architecture in our country. The first volume has done much to effect this object and no doubt this second volume will have a greater influence, as it will have a wider circulation. No person who has the hope to build a house for himself or for another should be without it.

Patent Agency.

Applications for Patents made at this office, on the most reasonable terms. Neat drawings, specifications, and engravings of the first character, and cheaper than anywhere else. Notices of new inventions, Agency for the sale of Patent Rights, and all business of that nature, promptly attended to. Those who have patent rights to dispose of will find a good opportunity and field for their sale—such as Horse Power Machines and Waterwheels of every description. The largest circulation in the world for advertisements of inventions, &c.

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☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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CHANDLER'S PATENT MORTICING MACHINE.

THIS is the only machine ever offered to the public that will do the work required in so perfect a manner in so short a time. It is the only machine that will clear the chips from the mortice, which is a great improvement over all other machines. It will work on any kind of wood and can be operated with any kind of power. It can be applied to framing large timber as well as small, and is not liable to get out of order. It took the first premium at several Fairs last autumn and a medal from the American Institute. It can be seen at 153 Green st., New York, where all orders will be executed with dispatch.

THOMAS THATCHER.

N. B. A partner wanted with a capital, to embark in the business. f19 1t*

For Sale

LEWIS'S PATENT REVERSIBLE FILTER.

THIS Filter is superior to any now extant. The small one is adapted to culinary purposes, and the other for manufactories and steamboats. It will be disposed of for the United States or for separate States. It is offered for sale to close an estate. Any person desirous to make a profitable investment can purchase the same low, and on reasonable terms

Apply to the subscriber at No. 59 Gold st., where it can be seen in operation.

For the Estate of Robert Taylor,

f19 1m THEODORE TAYLOR.

Notice to Silk Growers and Farmers.

THE subscriber has a small Farm, 40 acres of which is good land, under good improvements, good house and barn and six thousand beautiful Bruce Mulberry Trees of nine years growth, from the seed, bearing large and thick leaves, and have never been injured by frosts, which he would let on reasonable terms by the year or on shares Said farm is pleasantly situated at Birmingham, on the Ausable River, in view of Lake Champlain, 2 miles distant. For further particulars enquire of

JOSEPH GOULDING,

f19 3t* Keeseville, Essex Co., N. Y.

Glass Bubbles for Spirit Levels.

☞ We have made such arrangements with a manufacturer of the above article, that we can furnish any size or quantity at a less price than they can be procured for at any other place in the city.

f19 MUNN & CO.

Johnson's Improved Shingle Machine.

THE Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eighth more shingles can be sawed in the same given time than by any other machine now in use.

Augusta, Maine, Oct. 1, 1847. J- G. JOHNSON.

Wanted.

AN experienced Mechanical Engraver who can make his own Drawings, from Models. Constant employment given, and good wages allowed.

Apply at this Office. f12

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Excelsior Daguerrian Gallery,

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☞ Pictures taken by the above Artist warranted to give satisfaction. f12

Henry Waterman, 239 Cherry st.

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THE Subscriber is now manufacturing a superior article of Large Turning and Screw Cutting Lathes, Drilling Machines, &c. to which he would respectfully call the attention of Machinists and others requiring the above articles. Also, Machinery of every description, manufactured to order, at 42 Gold street, New York. G. B. HARTSON. j1

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THE SUBSCRIBER having been engaged in selling American Hardware on commission for 7 years, solicits consignments from manufacturers, and will refer to those who have employed him the above number of years. SAMUEL C. HILLS,

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November 29, 1847. d18 6m

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☞ OF ALL NATIONS—JUST PUBLISHED, on the 1st February, 1848.—THE LAWS AND PRACTICE of all Nations and Governments, relative to PATENTS FOR INVENTIONS.—The work embraces the entire Laws with marginal notes, forms and fees, with remarks thereon, inclusive of the attendant expenses, in England, France, Belgium, Holland, Dutch West Indies, Austria, Prussia, Russia, Saxony, Wurtemburg, Bavaria, Sardinia, Roman States, Sweden, Spain, Cuba, and the United States.

Price on good paper and bound with paper covers, $1 ; on extra fine paper, in paper covers, $1,50 ; bound in cloth, 1,75 ; in full law binding, $2.

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Woodbury's Horse Power.

THESE Machines have been extensively used the past season for driving the largest Threshing Machines and Separators in New York, Michigan and Wisconsin, and have exceeded the most sanguine expectations of all concerned in strength, durability, ease of operation, efficiency and cheapness. They received the highest premium at the Onondaga and Washington County Fairs, and the approbation of all who have seen them in use. It is, I think, perfectly obvious that no other arrangement with two pinions can ever be produced of equal simplicity and convenience by being permanently mounted and operating in any direction without unfastening from the ground and belting above the horses they are rendered so perfect that forty cords of heavy wood have been sawed twice in two in a day by four men and three horses.

Rights of territory, patterns of wood or iron for casting, and horse powers, for sale by the subscriber, or by Henry Olds, of Syracuse, N. Y., my authorised Agent.

DANIEL WOODBURY.

Perkinsville, Vermont, Jan. 5, 1848. j22 6t*

To Mill Owners.

HAVILAND & TUTTLE'S Patent Centre Vent Pressure Water Wheel.—These wheels are now in successful operation in many towns in Maine, Massachusetts, and Rhode Island, and are found to surpass in power and facility of adaptation any water wheel now in use. This wheel was awarded the silver medal at the Fair of the American Institute recently held in New York and a diploma at the Mechanics' Fair in Boston.

The wheels are manufactured and for sale by the FULTON IRON FOUNDRY CO., South Boston, Mass.,—where the wheels can be seen and any information concerning them had.

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REMOVED.

THE SUBSCRIBER has removed his Patent Agency from 12 Platt to 189 Water street.

The object of this Agency is to enable Inventors to realize something for their inventions, either by the sale of Patent Goods or Patent Rights.

Charges moderate, and no charge will be made until the inventor realizes something from his invention.

Letters Patent will be secured upon moderate terms. Applications can be made to the undersigned, personally or by letter post paid.

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T. F. E. devotes particular attention to introducing and selling Patent Rights, or Manufactured Patent Articles throughout the United States and Europe, and flatters himself that he is eminently successful. Patentees and Inventors are invited to call.

References.—Munn & Co. Scientific American, New York ; Kingsley & Pirrson, Eureka, New York; W. H. Starr, Farmer & Mechanic, New York ; S. Nichols, Editor Sunday Mercury, New York ; Williamson & Burns, Sunday Dispatch, New York ; Edmund Morris, Editor Gazette, Burlington, N. J. ; J. B. & P. Kunkle, corner of Garden and Willow sts., Philadelphia ; John Hancock, Editor Mirror of Patent Office, Washington, D. C, d25 3m*

ENGRAVING ON WOOD, DESIGNING AND DRAWING.

THE Subscriber would respectfully inform the public that he is prepared to furnish Engravings on Wood, in every style of the art, upon the most reasonable terms ; also designs and drawings of machinery, for specifications, at the shortest notice and with the most undeviating punctuality.

Views of Manufactories and Country Stores engraved on Wood from Daguerreotype plate with correctness.

All work executed by the subscriber warranted to give satisfaction. References can be given to some of the best mechanics in the country as regards ability, &c.

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Lap welded Wrought Iron Tubes

FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,

d26 28 Platt street, New York

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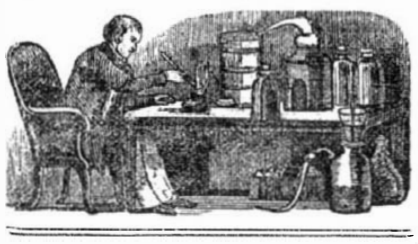


For the Scientific American.

Enamels.

WHITE OF MODERATE HARDNESS.—Fine lead 1 lb, pearlash and calx of tin ½ a lb, each ground together and melted not under too strong a heat nor too long a period, but until well incorporated. After this it may be poured out and made into mould cakes, like the Venitian enamel. This does well for enamels that are to be painted and if two ounces of borax and common salt with one ounce of arsenic be added, but using less heat a softer enamel will be the result.

A whiter enamel than the previous one is made with flint glass one pound, calx of tin half a pound, pearlash and common salt each four ounces and borax one ounce. This enamel is very white and proper for dial plates and other such uses. A softer enamel equally white will be made by adding to the above more borax and not using so much heat.

For a very white enamel and very soft, proper for painting: take of pounded flint glass one pound, of antimony calcined to perfect whiteness, or of calcined tin, half a pound, of perlash and common salt three ounces, and of borax three ounces. This must not be fused until a liquid but heated until all are perfectly incorporated with one another. This enamel is very soft and extremely white, and by adding a little arsenic it can be made softer still. It is used for the representation of white linen on enamels.

If arsenic is incorporated with common white glass, it produces a fine opaque white mixture, but care must be taken not to vitrify them, or they will become transparent and lose opacity. It is therefore difficult to use and is seldom employed.

COLORED SUBSTANCES USED FOR PAINTING ENAMEL, ALSO THE PROPER FLUXES.

PURPLE OF GOLD.—Take of a flux of lead one pound, pearlash six ounces and borax four ounces, with a little salt. Take of this flux six parts and precipitate of gold one part, mix them well together and paint with them.—This will produce a fine crimson and the more gold used the richer or deeper will be the color. If the above composition be fluxed together with a strong fire until the whole appears a transparent deep red (when it should be poured on a clean iron plate and well levigated,) it will be fit for painting, and answer in enamelling, as lake in oil painting, either for glazing or making dark shades of red. If this preparation be mixed after it has been levigated, with a sixth part more of gold precipitate and used without a second fluxing, a very fine and deep crimson is the result.

ORANGE ENAMEL.—Take 2 parts of the same flux as for the last and the red precipitate of mercury 1 part, mix them well together and paint with them. This will not do to be subject afterwards to a very great heat as it is delicate to use. If ochre be used instead of the mercury, a dull orange will also be made. Pinks are made by using the foregoing coloring substances in less quantities.

BRIGHT BLUE.—Take of fine Venitian glass 6 parts and of good ultramarine 1 part and mix them for painting, or if a very transparent blue be wanted, mix about one-eighth part ultramarine with the flux for red gold color, and fuse them together until all are vitrified and transparent, when it is poured out on clean iron, cooled and levigated for painting. More ultramarine is added for depth of color but a small portion of cobalt mixed with borax should always be used along with it for cheapness, and it will not impair the brightness of the ultramarine. It should not be forgotten that much that is sold for ultramarine, instead of being made from the *lapis laxuli*, is nothing but a preparation of Prussian blue. If any copper is used in adulterating the ultramarine, it becomes greenish on the enamel.

Cobalt is the best substance for blue enamels, it is cheap, can be used alone and makes a beautiful bright blue, deep in shade and bordering on violet. With a small quantity of the gold precipitate and borax, it makes a rich purple, and by proportioning the quantities of these three substances and using some of the calx of tin, shades of lilac, lavender, in short, from the most delicate French white to the deepest blue and violet may be produced.

A deep and transparent blue is made by using a flux of one pound of ground flint or white glass, six ounces of the calx of tin and the same amount of borax with two ounces of common salt, mixing and fusing them until the mass is perfectly transparent or use enough of borax along with it to vitrify sufficiently, eight ounces of cobalt. When it is fully vitrified, it is cooled and ground in a muller for painting. This makes a fine transparent blue. Any quantity can be made up in the above proportions. If a fine cobalt be used in the proportion of four times the weight of cobalt to that of calcined borax or fine pearl ashes, a fine composition for a deep blue is the result. Light blues are made by using a small proportion of cobalt or ultramarine along with the white enamel before given.

Improvement in Aquatinta Engraving.

The London Mechanic's Magazine gives the following improved process in this art:—

"After the intended figure is outlined, by etching or otherwise, the plate is all covered over with a ground of rosin, Burgundy pitch, or mastic dissolved in rectified spirits of wine. This is done by holding the plate in an inclined position and pouring the above composition over it. The spirit of wine almost immediately evaporates and leaves the resinous substance in a granulated state, especially dissolved over every part. The granulations thus produced, if examined through a magnifying glass, will be found extremely regular and beautiful. When the particles are extremely minute, and near to each other, the impression from the plate appears to the naked eye exactly like the wash of Indian ink; but when they are larger, the granulations appear more distinct. The powder, or granulation, is called the aquatinta train. The plate is next heated to make the powder adhere; and in those parts where a very strong shade is wanted, it is scraped away; but where strong lights are wanted a varnish is applied. The aquafortis, properly diluted with water is then put on with a piece of wax, as in common etching or engraving; and by repeated application of this process, scraping where darker shades are required, and covering the lights with varnish, the final effect is produced.

Engraving by aquatinta was invented by Le Prince, a French artist, by whom the process was long kept a secret. It is even said that for a long time he sold his prints, (which are still reckoned excellent specimens,) for drawings."

Preservation of Books and Manuscripts.

It is not perhaps so generally known as it deserves to be, that a few drops of any kind of perfumed oil will secure books and MSS. from the deteriorating effects of mould and damp. The species of leather so extensively used by book-binders owes its power of withstanding the effects of these destructive agents to the tar of the birch tree (*betula alba.*)—The art of preserving books—written on papyrus and parchment, by means of perfumed oils, was known to the ancients. The Romans made use, for this purpose, of the oil of cedar; hence, undoubtedly, the expression of Horace, "*Digna Cedra*,"—meaning any work deserving of being anointed with this oil. It is frequently the case that valuable collections of books are greatly damaged by the effects of damp, and MSS. to which great importance attaches, are often wholly spoiled. The hint may be worthy of attention.

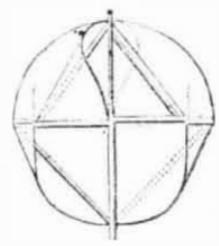
Camphor is perhaps the best preservative from the ravages of the moth, of any thing known and it will frighten red ants from cupboards and pantries.

Mr. S. Weller, of Brinkleyville, N. C. made 2000 gallons of Scuppernong wine from an acre of vines, last season, and had a clear gain of $1500, only $500 being expended in producing this great yield.

Count Rumford, by holding a cannon within water, so heated it by the friction that he made it boil and actually boiled a piece of beef in it.

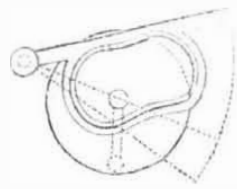
MECHANICAL MOVEMENTS.

Universal Wind Engine.



This is a representation of Latour's windmill, which answered for a toy to amuse, not an engine to propel. The principle of its construction was the power to change its face every where by the peculiar shape of its sails, which are not easy to describe in a single figure. The principle was that at the point to the left the arrangement of the stays was altered and the sails were drawn or reefed close. As the spindle revolved and the weather point came exactly where the wind struck against it, the sails were reefed on that side until they came to where the wind acted to operate the shaft, when they were unfurled and exposed to the wind. The arrangement of the stays and sails were so complex and difficult to manage for any practical uses, that it never was used.

Transverse from Circular Motion.



By the eccentric which is connected with the wheel, it will readily be observed that as the wheel revolves the shaft will work transversely. In regard to the observance of mechanical movements, it should never be forgotten that to trace them correctly the first movement must be kept in mind, and then observe the connection with and trace the motion of it, as the first mover revolves, or traverses, or whatever motion it may be. This is what is called, "reading mechanical movements" This exercise is interesting for the young, to whose attention these articles are principally directed, and we always wish them to have some little to study. This is better exercise for our subscribers' sons than useless and vain conundrums.

Weights and Measures.

As all families are not provided with scales and measures referring to ingredients in general use by every housewife, Dr. Browne gives the following list:

WEIGHT AND MEASURE.

Wheat flour 1 pound is 1 quart.
Indian meal, 1 pound 2 ounces is one quart.
Butter, when soft, 1 pound 1 ounce is 1 quart.
Loaf sugar, broken, 1 pound is 1 quart.
White sugar, powdered, 1 pound 1 oz. is one quart.
Best brown sugar, 1 pound 2 ounces is 1 quart.
Eggs, average size, 10 eggs are 1 pound.

LIQUID MEASURE.

Sixteen large tablespoonsful are 1-2 a pint,
Eight tablespoonsfull are 1 gill.
Four large table-spoonsful are half a gill.
A common sized tumbler holds 1-2 a pint.
A common sized wine-glass holds 1-2 a gill.

Concrete Shoal Blown Up.

A shoal of hard concrete was lately blown up in the River Thames, England, by the following most simple process. A pole was sunk in the concrete bed and a canister of thirty-five pounds of powder was gently slid down on the pole and rested upon the bed close to the same. A copper wire was connected with the powder and one of Smee's galvanic batteries used in a boat at a safe distance. At the appointed signal the electric spark was transmitted to the powder and about nine feet deep and thirty feet in circumference around the canister of powder was completely raised up and fit to be lifted by the dredging machine. Although the canister of powder but rested on the concrete yet the water above acted as a fulcrum for the powder to produce the effect on the concrete bed below.

The Missouri Wooden Dog.

In our daily rounds says the N. O. Delta, in search of "items," we happened to stroll into the clothing store of Messrs. John Southwell & Co, No. 21 Canal street. Our attention was there directed to an extraordinary natural curiosity, formed by the growth of the limbs of a tree. The history of this ferocious looking "critter," as given to us, is as follows:—About the year 1807, a French naturalist was making a botanical and mineralogical excursion in the northern part of Missouri. He took up his abode at a Shawnee village for a few days, and in the wigwam of one of the Indian chiefs of the tribe, he found the curiosity in question. He purchased it, put it on the back of a mule and carried it to Canada, and finally brought it to New York, where it has been kept until purchased by Mr. Southwell. The body, the four legs and the tail, which, by the by, is the worst part of it, are all formed of one solid piece of wood. It is certainly one of the most singular freaks of nature that we have ever seen.

To Destroy Cockroaches.

Take a sixpenny loaf of bread—the staler the better—reduce it to a crumb, (of course after paring off the crust,) then in a pint of water put two spoonfulls of cayenne pepper, one of pulverised orris seed, half a drachm of saltpetre, the same quantity of white lead, and a wine glass full of extract of hops. Now throw in your crumbs of bread, digest for six hours in a moderate heat; strain through a cloth, add to the liquor 30 drops of the tincture of quassia, and let it stand till next day; then bottle it and keep it in a pantry. Some dozen lumps of sugar saturated with this mixture, and strewed about the kitchen will remove the pest in a few days."

The above can be easily tried, all we can say regarding it is that it appeared in one of our exchanges and it appears to be worthy of a trial.

New Coat.

A double coat has been invented in England so arranged as to form a dress coat one side out, and a weather proof travelling coat the other side.—*Ex.*

Truly, a two-sided habiliment.

By taking two wafers and sticking them on a wall about 12 inches apart, and then stepping back a few feet with one eye shut, one of the wafers will disappear.

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This paper, the most popular weekly publication of the kind in the world, is published *At 128 Fulton Street, New York, and 13 Court Street, Boston,*

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The SCIENTIFIC AMERICAN is the Advocate of Industry in all its forms, and as a Journal for Mechanics and Manufacturers, is not equalled by any other publication of the kind in the world.

Each number contains from FIVE to SEVEN ORIGINAL MECHANICAL ENGRAVINGS of the most important inventions; a catalogue of AMERICAN PATENTS, as issued from the Patent Office each week; notices of the progress of all new MECHANICAL and SCIENTIFIC inventions; instruction in the various ARTS and TRADES, with ENGRAVINGS; curious PHILOSOPHICAL and CHEMICAL experiments; the latest RAILROAD INTELLIGENCE in EUROPE and AMERICA; all the different MECHANICAL MOVEMENTS, published in a series and ILLUSTRATED with more than A HUNDRED ENGRAVINGS, &c. &c.

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